415/148

CHAIN BELT

REX

COMPANY

U.S. PATENT OFFICE
FEB 7 1956
DIVISION 9

the PUMPS that never let you down

A PRODUCT OF CHAIN BELT COMPANY

MILWAUKEE 1, WISCONSIN

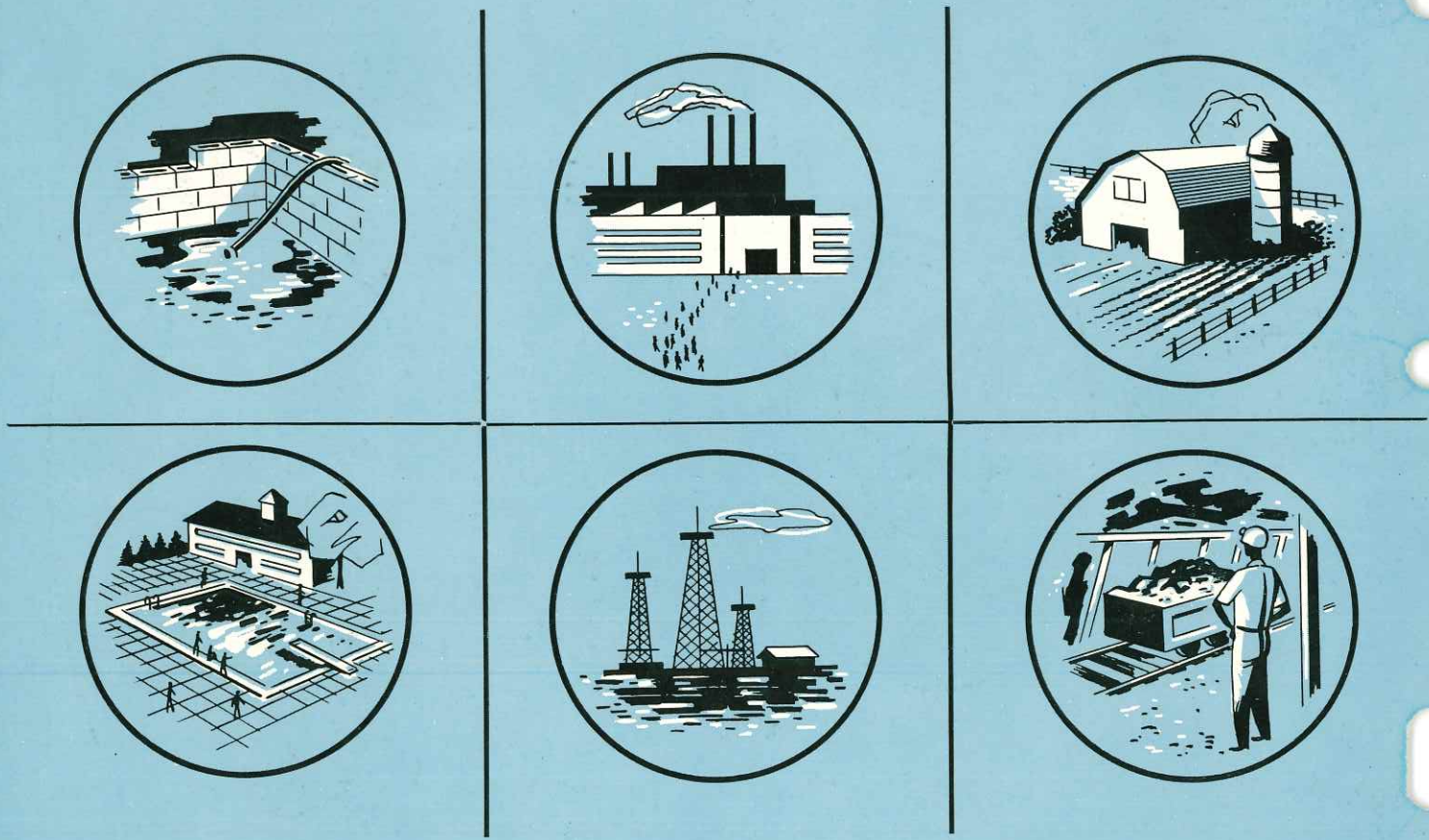
the pumps that never let you down

No matter where you use a pump . . . water supply . . . draining sewers . . . irrigation . . . de-watering a mine . . . oil salvage . . . industrial plants . . . removing water from a flooded foundation . . . you will find a Rex Pump your most dependable piece of equipment, now and in years to come . . . the pump that never lets you down.

Rex Self-Priming Centrifugal Pumps are simple in design and construction. They are easy to maintain and service, and they are the only pumps with the patented adjustable air peeler that maintains new-pump efficiency for the life of the pump.

With a Rex you can depend on instant starts in cold and wet weather . . . maximum capacities with mud and debris-filled water . . . dependable, high out-put service under the most severe and rugged pumping conditions.

On the following pages you will see the reason why a Rex Pump is your best buy for all types of pumping service. Their rugged, lightweight construction, easy portability, exclusive design—all combine to give you longer service and lower pumping costs.



REX®

self-priming centrifugal pumps

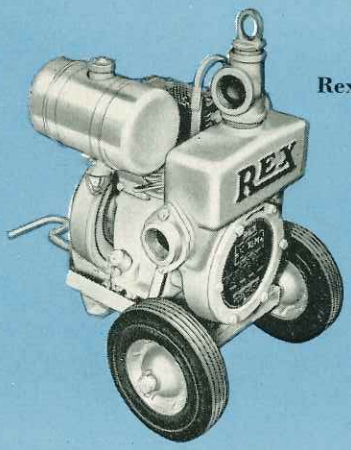
. . . from 4,000 to 104,000 GPH

You will find a Rex Pump in the size and capacity to fit every need—from taking water from a ditch or cellar to de-watering a quarry or municipal sewerage works or filling tank trucks. Each one contains all the famous Rex features—adjustable air peeler, replaceable wearing plate, simple design, easy accessibility and low-cost operation.

All Rex Pumps are available in gasoline power. Larger sizes are available in diesel power. Rex Pumps are available on skids, steel wheels or pneumatic tires. See specification sheets for complete data on capacities, ratings, etc.

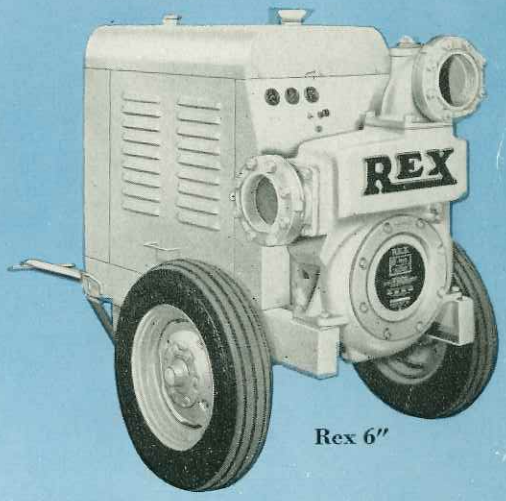
Rex 1½"

Rex 4"



Rex 2"

Rex 3"



Rex 6"

SIMPLE DESIGN

INSURES LONG, TROUBLE-FREE SERVICE

the inside story of the

SIMPLEST PUMP EVER BUILT

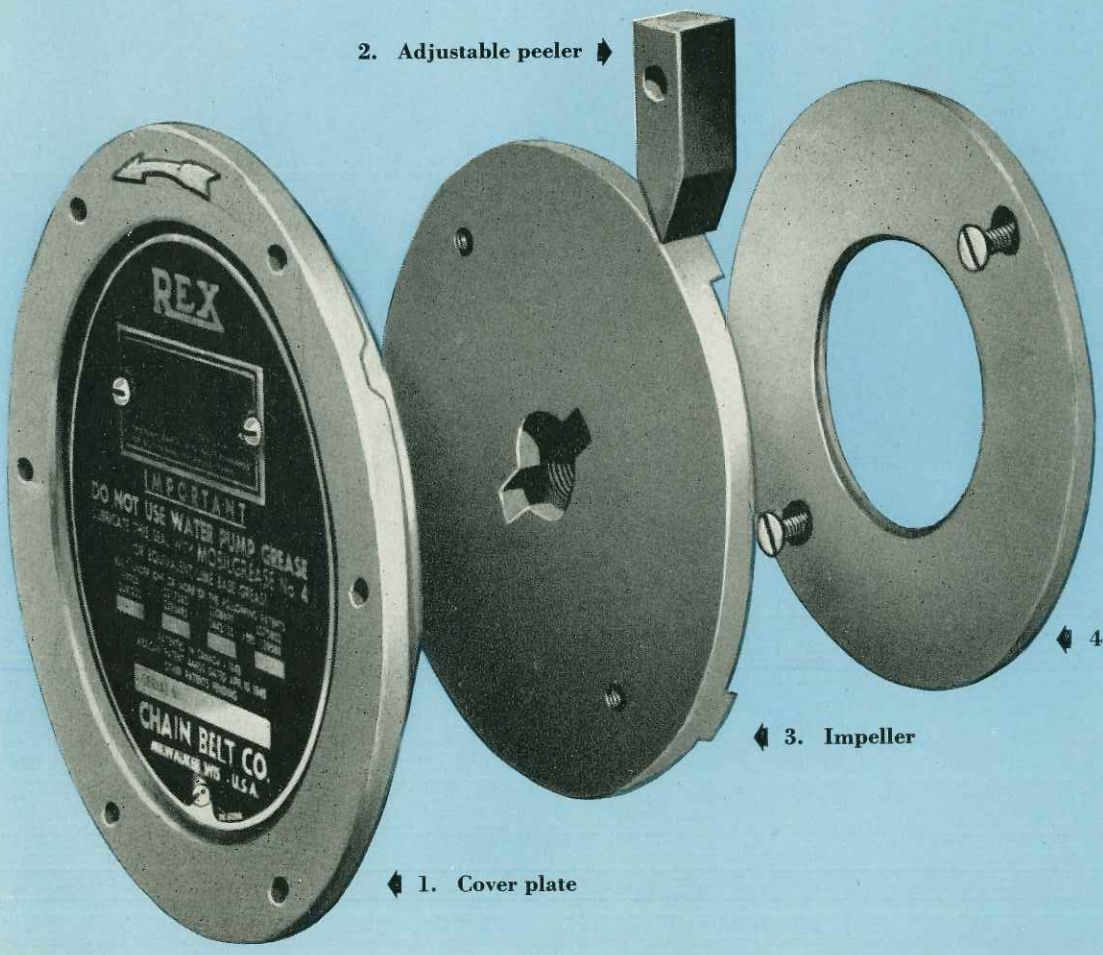
Here you see all the parts of a Rex Pump. In terms of service costs and operation . . . these few, well-designed, rugged parts mean—

LONGER LIFE . . .

Fewer parts mean less wear.

ECONOMICAL OPERATION . . .

Fewer and more accessible parts mean less chance for trouble . . . far lower maintenance costs.



2. Adjustable peeler

3. Impeller

4. Wearing plate

5. Leakproof seal

1. Cover plate

REX pump

6. Pump body

SUSTAINED EFFICIENCY . . .

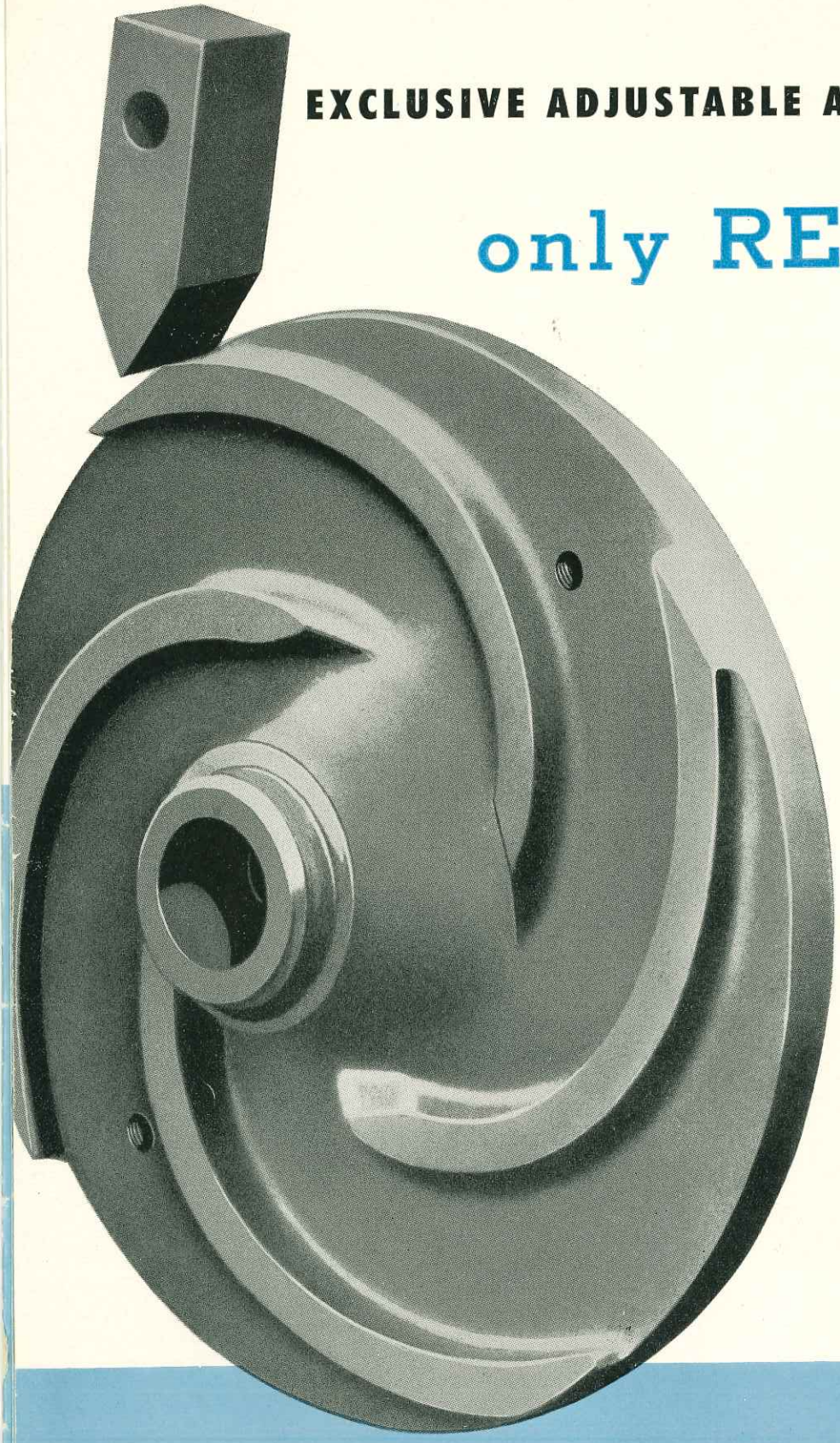
Simplicity of design means easy and inexpensive replacement of wearing parts to restore new pump efficiency . . . a Rex exclusive!

NOTE: These few parts are precision parts. Smooth water passages reduce friction losses. Simple, open-type impeller has large vanes . . . assures maximum water handling. Rugged metal resists corrosion and abrasion. Patented "adjustable" air peeler is made of high carbon steel for extra life.

simple design insures long trouble-free service

EXCLUSIVE ADJUSTABLE AIR PEELER MAINTAINS

only REX has the



To operate at all, any self-priming centrifugal pump must remove all the air from the suction line, creating a vacuum that draws water up to the impeller. That's the job of the peeler and every self-priming pump has one.

But, only Rex has an adjustable Peeler, and that's why Rex alone can keep new-pump efficiency for life. When abrasive wear on impeller or peeler increases the original clearances between these parts, a pump loses its priming ability.

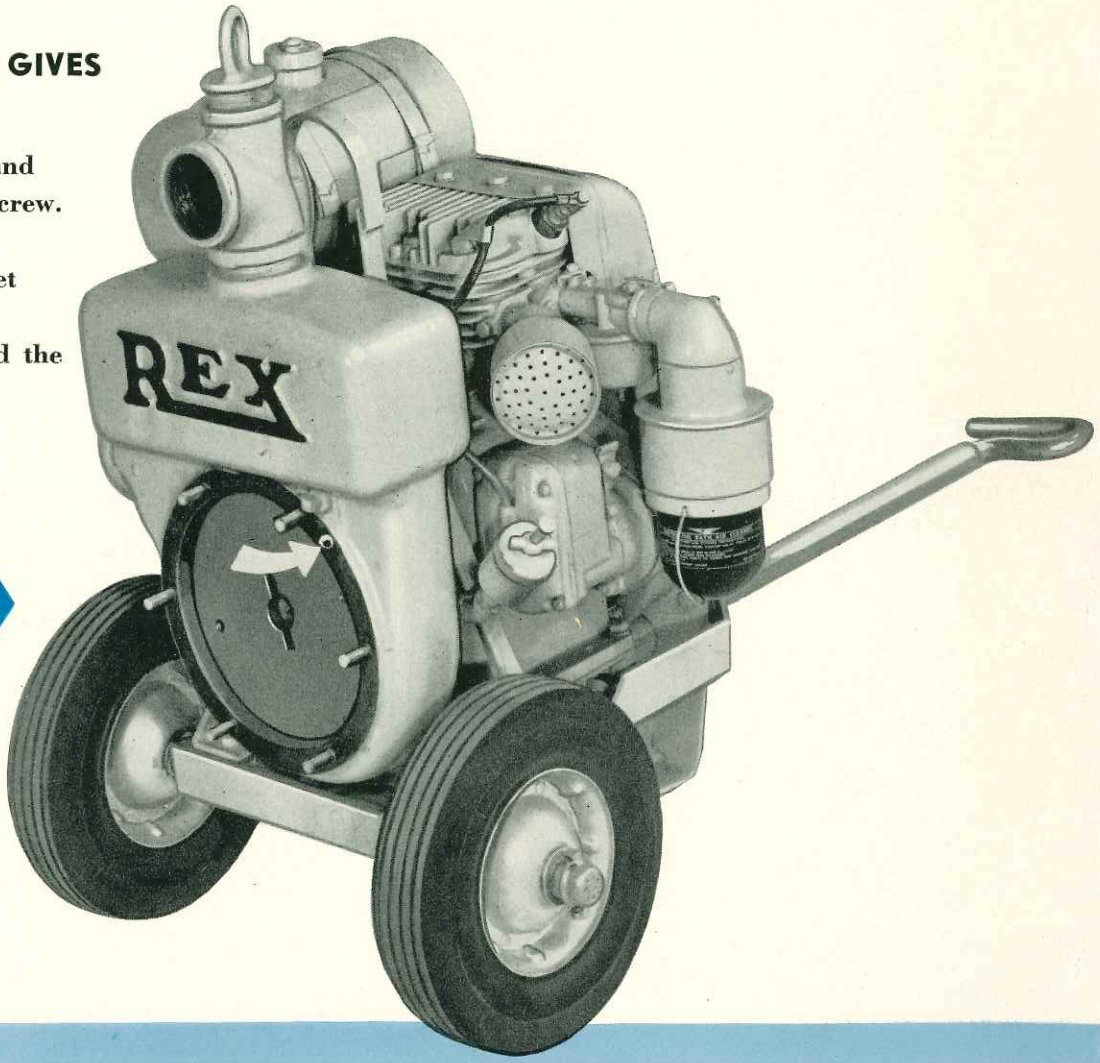
With Rex, you simply restore original clearances by adjusting the peeler. With others, you must get a new pump body or a new pump. This one feature alone makes Rex far superior to any other pump. Any pump can be efficient when new . . . only Rex is efficient for life!

NEW PUMP EFFICIENCY FOR THE LIFE OF THE PUMP

adjustable air peeler

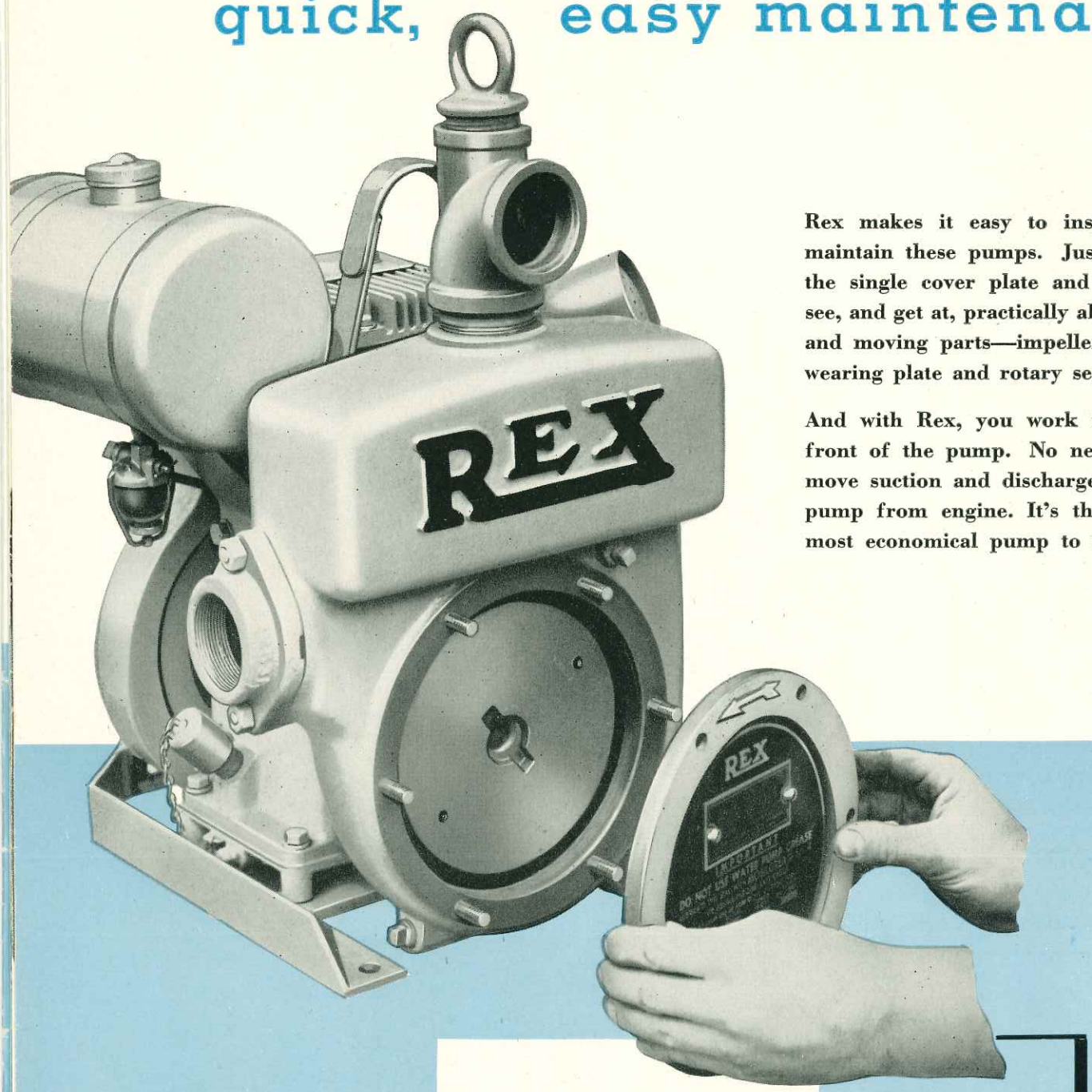
A TWIST OF THE WRIST GIVES NEW PUMP EFFICIENCY

Just remove the cover plate and gaskets and back off the set screw. The Peeler is adjusted to just clear the impeller. Tighten set screw . . . replace cover and gaskets and you have restored the pump's original efficiency.



highest performance, always

quick, easy maintenance



Rex makes it easy to inspect and maintain these pumps. Just remove the single cover plate and you can see, and get at, practically all wearing and moving parts—impeller, peeler, wearing plate and rotary seal.

And with Rex, you work from the front of the pump. No need to remove suction and discharge hose or pump from engine. It's the easiest, most economical pump to maintain.

simple to service

highly portable

Rex Pumps are rugged and sturdy, yet they are low in weight for easy portability. The husky little 1½-inch pump is easy to lift and carry. The other Rex Pumps, up to the 6-inch Pump can be easily handled by the tow pole.

The pumps couple directly to the engine without need for a special coupler. The design not only eliminates dead weight . . . it permits a well balanced, close-coupled design that assures high portability. It's easy to pull the pump off the engine. Just remove a few nuts.

easy to move

replaceable wearing plate

To maintain pump capacities and efficiency, correct tolerances between impeller and volute must be maintained. In a Rex Pump, wear cannot permanently destroy these tolerances because wear is taken by a replaceable wearing plate.

This high-carbon steel, wear-resistant plate can be easily and inexpensively replaced when necessary after long, hard service. Again, Rex accessibility makes this task easy because the wearing plate is reached by removing the cover plate and impeller at the front of the pump.

REX EFFICIENCY FEATURES MEAN

positive leakproof seal

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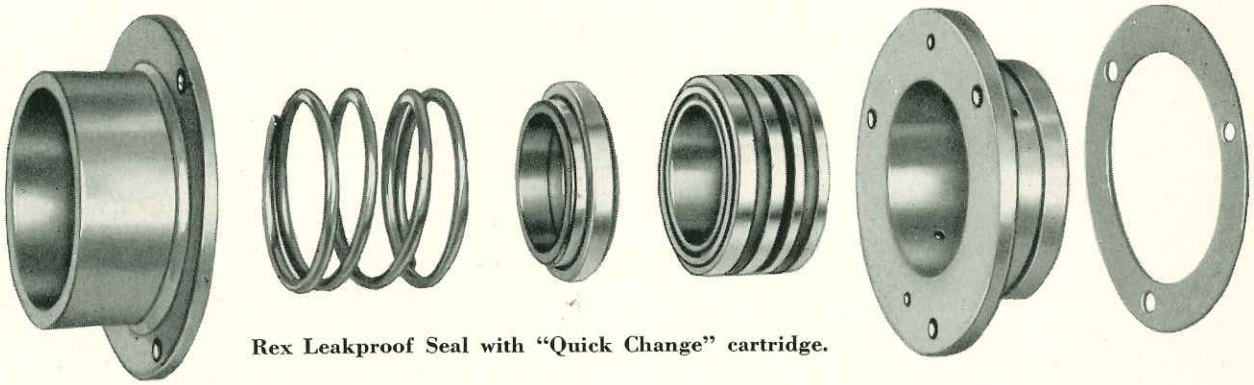
Rex Leakproof Seal



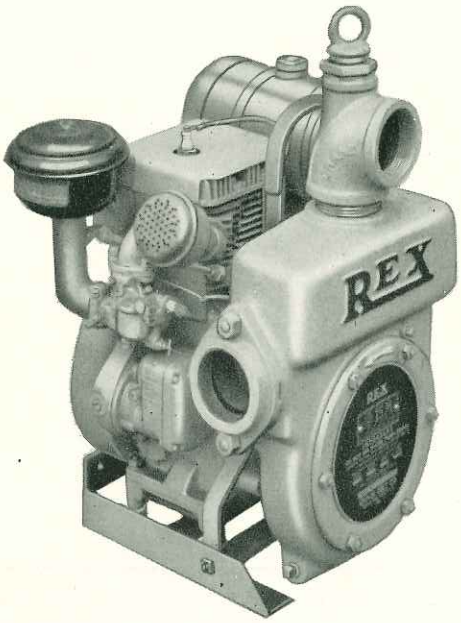
Rex Leakproof Seal with "Quick Change" cartridge.

The Rex Leakproof Seal is located on the suction side of the pump which permits use of a simpler, more positive seal. The spring retains its tension because it is never subjected to pumping pressure. Spring-loaded grease cup automatically lubricates seal.

On the larger size pumps, the Rex Leakproof Seal is available in a "Quick Change Cartridge." It is a complete seal within a replaceable housing. Seal can be replaced in minutes, not hours. Replacement is done without removing pump body from engine.

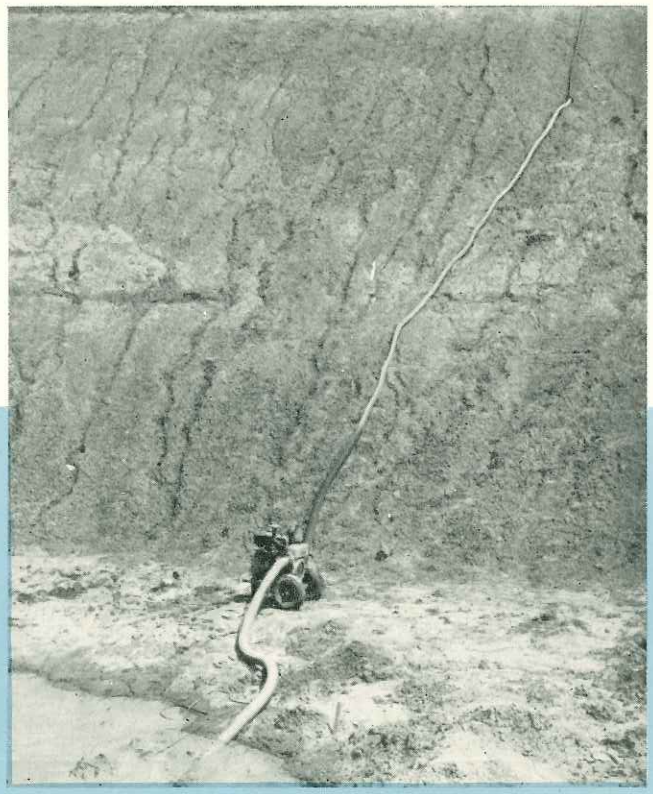
LOW COST SUSTAINED PERFORMANCE

high head pumps



Where higher pressures are required for jetting service, dewatering quarries and mines, spraying, or for moving water long distances, Rex "High Head" Pumps are the ideal choice. These pumps are specially designed for high pressure operation.

Rex "High Head" Pumps incorporate the same high quality and rugged construction of other Rex Self-Priming Centrifugal Pumps. They are built to stand years of heavy-duty and continuous operation at lowest operating costs. All sizes are available with skid mount, steel wheels or rubber tires. For pressures and other operating data, check specification sheets.

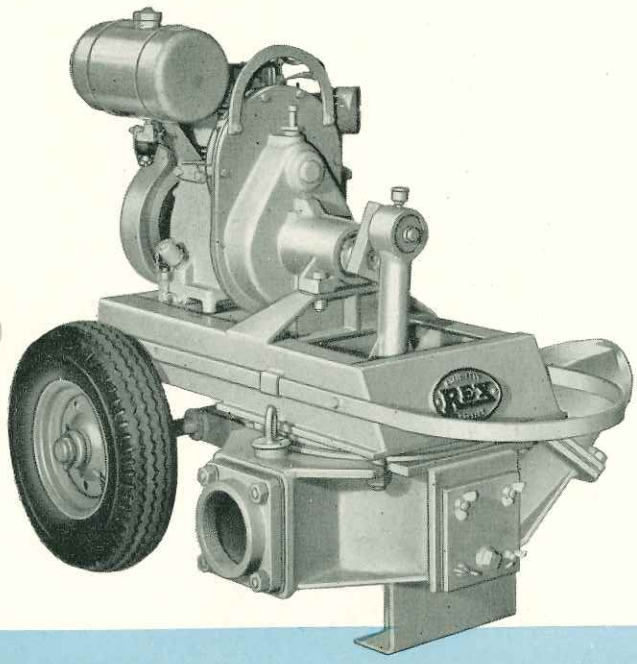


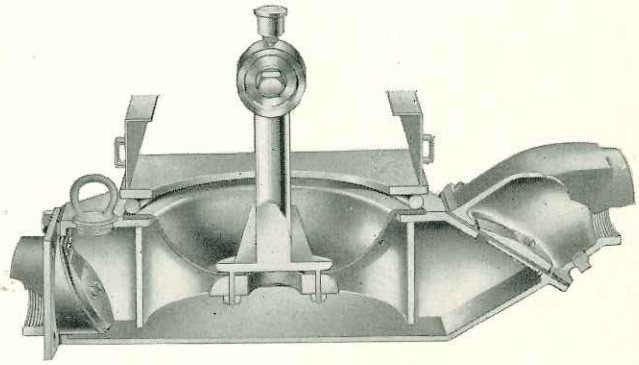
FOR COMPLETE SPECIFICATIONS

closed diaphragm pump

The Rex Closed Diaphragm Pump is designed for de-watering service where large amounts of solids are to be encountered. It is famous for its rugged design and long dependable service. Pumping out storm sewers, flooded manholes and seepage water are among the jobs the Rex Diaphragm Pump handles with ease.

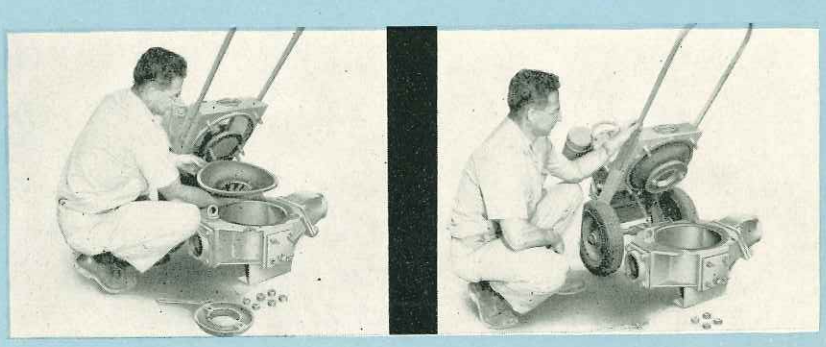
The Rex Diaphragm Pump is rugged to stand up under rough usage and handling. It is light in weight and highly portable. See Rex Diaphragm Pump specification sheet for complete details on suction lift, capacity, etc.





Straight-line flow

New discharge coupling affords straight-line flow. This design helps to keep intake and discharge valves flushed free of debris at all times. No right angle elbows to hinder solids' flow or reduce capacity.



Quick diaphragm change

Unfasten the four nuts which hold the frame and body together. Tilt the engine and upper frame away from body. Take off two nuts that hold the diaphragm to the piston. Remove old diaphragm and replace with new one.

SEE INDIVIDUAL SPECIFICATION SHEETS

electric motor-driven pumps

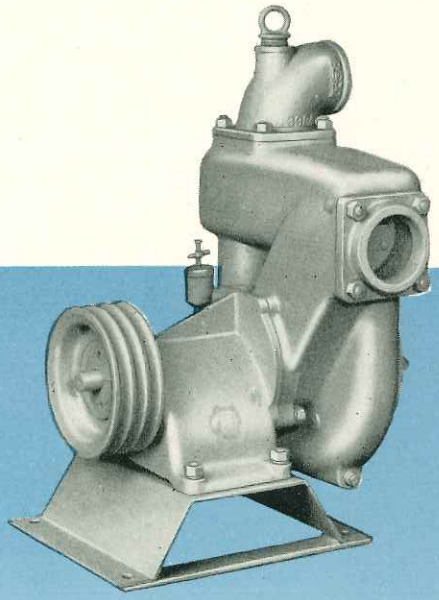
Where compactness is essential, or for indoor operation, Rex Electric Motor Driven Pumps in close-coupled design are available in 1½", 2", 3", and 4" sizes. The 6" electric driven pump is available with flexible coupling.

Electric motor sizes, horsepower, pump capacities, etc., are furnished on an individual pump specification sheet. Explosion-proof and splash-proof motors can be furnished. Electric driven pumps are skid mounted for permanent or semi-permanent installation.

pumps without power

Use your own power—gasoline engine, electric motor or power take-off from any available power source. Here again you have a wide choice in size and capacity . . . 1½", 2", 3", 4" and 6" sizes.

Rex Pumps without power are equipped for V-belt drive and metal base for easy hook-up and installation. You get the same high standard of quality, the same dependability, the same great pumping performance. Check specification sheet for capacities, power requirements, etc.



CONVERSION FACTORS FOR PRESSURE AND VACUUM

Feet head (water) x .433 = pounds pressure
Pounds pressure (water) x 2.31 = feet head
Feet head (brine, sp. gr. = 1.2) x .52 = pounds pressure
Pounds pressure (brine) x 1.92 = feet head
Feet head (gasoline, sp. gr. = .75) x .325 = pounds pressure
Pounds pressure (gasoline) x 3.08 = feet head
Inches of mercury x 1.132 = feet head of water
Feet suction lift of water x .882 = inches of mercury

Rex Pumps are handy for general utility work.

GENERAL INFORMATION

Watering trucks are filled fast with these Rex Pumps.

One U.S. Gallon of fresh water equals:

8.33 pounds
231.00 cubic inches
0.1337 cubic feet
0.833 Imperial gallons

One cubic foot of fresh water at 39° Fahrenheit equals:

62.424 pounds
7.481 U. S. gallons
6.232 Imperial gallons

A column of water one foot in height produces a pressure of .433 pounds per square inch.

One pound of pressure per square inch equals a column of water 2.31 feet in height.

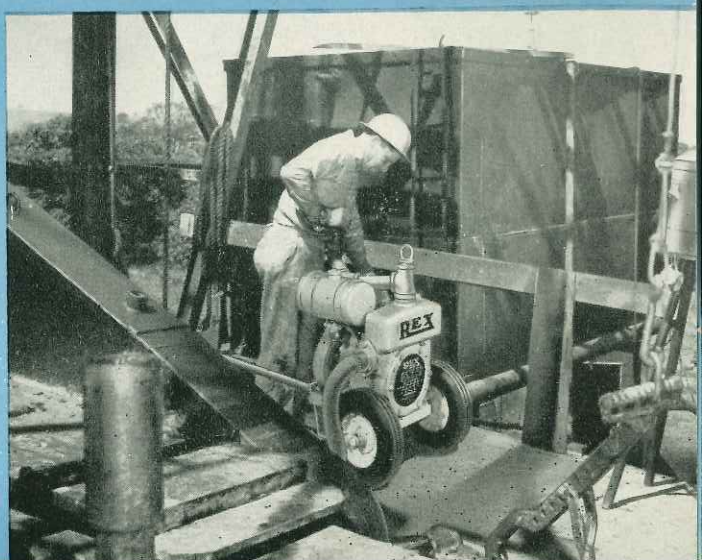
Atmospheric pressure at sea level is usually estimated at 14.7 pounds per square inch, which equals a column of mercury 29.9 inches high or a column of water 33.9 feet high. This is the theoretical distance that water can be drawn by suction under a perfect vacuum. The practical limit is 25 feet at sea level and with cold water, and common sense dictates that the suction pipe be just as short as the circumstances will permit.

Water horsepower equals:

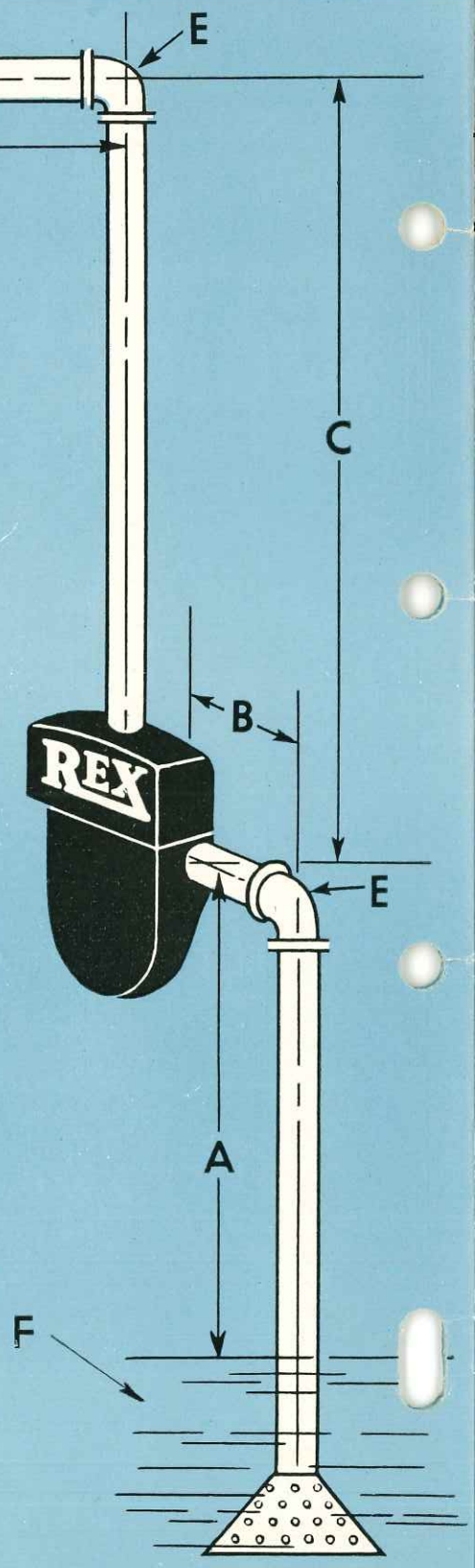
$$\frac{\text{Gals. per min.} \times \text{total head}}{3960} \quad \text{or} \quad \frac{\text{Gals. per min.} \times \text{lbs. per sq. in.}}{1715}$$

Due allowances must be made for pump and motor efficiency.

Quick starting and easy spotting make the Rex Pump a perfect unit for the many pumping jobs around oil fields.



HOW TO CHOOSE THE RIGHT PUMP



problem

It is desired to pump approximately 200 gallons of water per minute through a 3" pipe. The closest the pump can be set to the supply of water is 10′ vertically and 15′ horizontally. The discharge point is 18′ above the pump and 47′ horizontally away from the pump. There are two elbows in the line. This condition is illustrated by the drawing shown on this page.

A —	10′	= suction lift
B —	15′	= horizontal suction
C —	18′	= vertical discharge
D —	47′	= horizontal discharge
E —	16.4′	= elbows (2x8.2, see elbow equivalent table)
F —	5′	= equivalent length of straight pipe for strainer
Total —	111.4′	equivalent length of pipe for friction

static head — (A + C)

Static head or the vertical distance from water supply to discharge point:

A —	10′	= suction lift
C —	18′	= vertical discharge
Total —	28′	static head

friction loss

Friction loss may be determined by referring to table on page 17. According to our problem we have 200 gallons per minute flowing through 3" pipe, which gives friction loss of 11.6′ for 100′ of pipe, and as we have a total equivalent of 111.4′ of pipe (see paragraph 1) our friction loss is 1.114 x 11.6 = 12.9′.

Total Friction Loss — 12.9′

total head

Static head, plus friction loss = total head. Under the terms of our problem:

Static Head	28′
Friction Loss	12.9′
Total Head	40.9′

Please note the difference between 28′ static head and 40.9 total head and bear in mind that all centrifugal pumps are rated on total head, and the average pump user thinks in terms of static head.

important

The capacity tables listed in this bulletin represent factory tests. Make due allowances for high altitude, faulty spark adjustment, leaky valves, poor gasoline.

TABLE OF WATER FRICTION IN 100 FEET OF PIPE

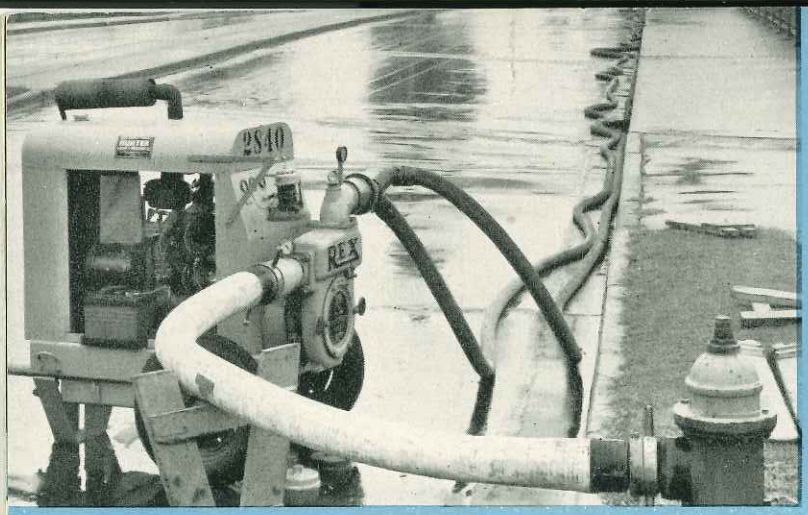
For Various Flows and Pipe Sizes, Table Gives Velocity of Water and Feet of Head Lost in Friction in 100 Feet of **Clean** Iron or Steel Pipe.

Note: For Old or Rough Pipes Add 50% to Friction Values in Table.

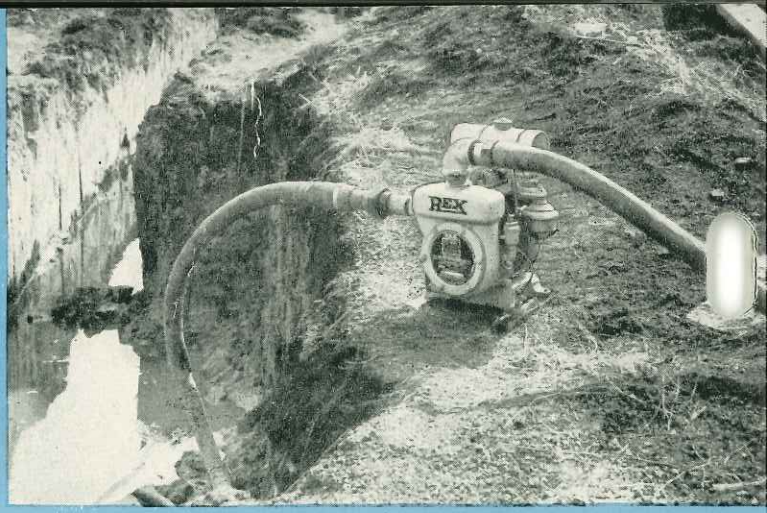
TABLE OF WATER FRICTION IN 90° ELBOWS

SIZE OF ELBOW — INCHES	1½	2	3	4	6
EQUAL TO FEET OF STRAIGHT PIPE	4.3	5.5	8.2	11.0	16.0

Flow in U. S. Gals. Per Min.	½"		¾"		1"		1¼"		1½"		2"		2½"	
	Velocity in Feet Per Sec.	Friction Head in Feet	Velocity in Feet Per Sec.	Friction Head in Feet	Velocity in Feet Per Sec.	Friction Head in Feet	Velocity in Feet Per Sec.	Friction Head in Feet	Velocity in Feet Per Sec.	Friction Head in Feet	Velocity in Feet Per Sec.	Friction Head in Feet	Velocity in Feet Per Sec.	Friction Head in Feet
2	2.10	4.8	1.20	1.2										
3	3.16	10.2	1.80	2.7	1.12	.82								
4	4.21	17.4	2.41	4.5	1.49	1.39	.86	.37						
5	5.26	26.5	3.01	6.8	1.86	2.11	1.07	.55						
10	10.5	95.0	6.02	24.7	3.72	7.61	2.14	1.98	1.57	.93	.96	.31	.67	.11
15			9.02	52.0	5.60	16.3	3.21	4.22	2.36	1.95	1.43	.70	1.00	.23
20	3"		12.0	88.0	7.44	27.3	4.29	7.21	3.15	3.38	1.91	1.18	1.34	.40
25	1.08	.25			9.30	41.6	5.36	10.8	3.94	5.07	2.39	1.75	1.68	.60
30	1.30	.35			11.2	57.8	6.43	15.3	4.72	7.15	2.87	2.45	2.01	.84
35	1.52	.46	4"		13.0	77.4	7.51	20.3	5.51	9.55	3.35	3.31	2.35	1.1
40	1.74	.59	1.01	.14			8.58	26.0	6.30	12.2	3.82	4.29	2.68	1.4
45	1.95	.75	1.13	.18			9.65	32.5	7.08	15.1	4.30	5.33	3.00	1.8
50	2.17	.90	1.26	.22			10.7	39.0	7.87	18.5	4.78	6.43	3.35	2.2
60	2.60	1.3	1.51	.32	5"		12.9	56.8	9.44	26.6	5.74	9.05	4.02	3.0
70	3.04	1.7	1.76	.41	1.12	.14	15.0	73.5	11.0	35.1	6.69	11.9	4.69	4.0
75	3.26	2.0	1.90	.48	1.20	.16			11.8	39.0	7.20	13.6	5.01	4.6
80	3.48	2.3	2.01	.58	1.28	.18			12.6	44.8	7.65	15.4	5.37	5.0
90	3.91	2.7	2.26	.68	1.44	.22	6"		14.2	55.5	8.60	18.9	6.04	6.3
100	4.34	3.2	2.52	.79	1.60	.27	1.11	.09	15.7	66.3	9.56	23.3	6.71	7.8
125	5.42	4.9	3.15	1.2	2.00	.42	1.39	.18			12.0	35.1	8.38	11.8
150	6.51	6.8	3.78	1.7	2.41	.57	1.67	.21			14.4	49.4	10.1	16.6
175	7.59	9.1	4.41	2.2	2.81	.77	1.94	.31			16.8	66.3	11.7	22.0
200	8.68	11.6	5.04	2.9	3.21	.96	2.22	.40					13.4	28.0
225	9.77	14.5	5.67	3.5	3.61	1.2	2.50	.48	8"				15.1	35.3
250	10.9	17.7	6.30	4.4	4.01	1.5	2.78	.60	1.60	.15			16.8	43.0
275	11.9	21.2	6.93	5.2	4.41	1.8	3.06	.75	1.76	.18				
300	13.0	24.7	7.56	6.1	4.81	2.0	3.33	.84	1.92	.21				
325	14.1	29.1	8.18	7.0	5.21	2.3	3.61	.92	2.08	.24				
350	15.2	33.8	8.82	8.0	5.61	2.7	3.89	.91	2.24	.27				
375			9.45	9.2	6.01	3.1	4.16	1.2	2.40	.31				
400			10.1	10.4	6.41	3.5	4.44	1.4	2.56	.35	10"		12"	
450			11.3	12.9	7.22	4.4	5.00	1.7	2.88	.45	1.83	.14		
500			12.6	15.6	8.02	5.3	5.55	2.2	3.20	.53	2.04	.18	1.42	.08
600			15.1	22.4	9.62	6.2	6.66	3.1	3.85	.74	2.44	.25	1.71	.10
700			17.6	30.4	11.2	9.9	7.77	4.1	4.49	1.0	2.85	.34	1.99	.14
800							8.88	5.2	5.13	1.3	3.26	.44	2.27	.18
900							10.0	6.6	5.77	1.6	3.66	.54	2.55	.22
1000							11.1	7.8	6.41	2.0	4.07	.65	2.84	.27
1100							12.2	9.3	7.05	2.3	4.48	.78	3.12	.32
1200							13.3	10.8	7.69	2.7	4.88	.95	3.41	.37
1300							14.4	12.7	8.33	3.1	5.29	1.1	3.69	.42
1400							15.5	14.7	8.97	3.6	5.70	1.2	3.97	.48
1500							16.6	16.8	9.62	4.1	6.10	1.4	4.20	.55
1600									10.3	4.7	6.51	1.6	4.54	.65
1800									11.5	5.6	7.32	2.0	5.11	.78
2000									12.8	7.0	8.13	2.4	5.67	.93
2500											10.2	3.5	7.09	1.5
3000											12.2	5.1	8.51	2.1
3500											14.3	6.5	9.93	2.7
4000													11.4	3.5
4500													12.8	4.5
5000													14.2	5.5



Rex Speed Primers function smoothly on municipal pumping service.



This is typical of the many ditch or similar de-watering operations where you can use the Rex Pump.

the PUMP that never lets you down

REX

Easy portability makes this Rex Pump ideal for emergency de-watering jobs.

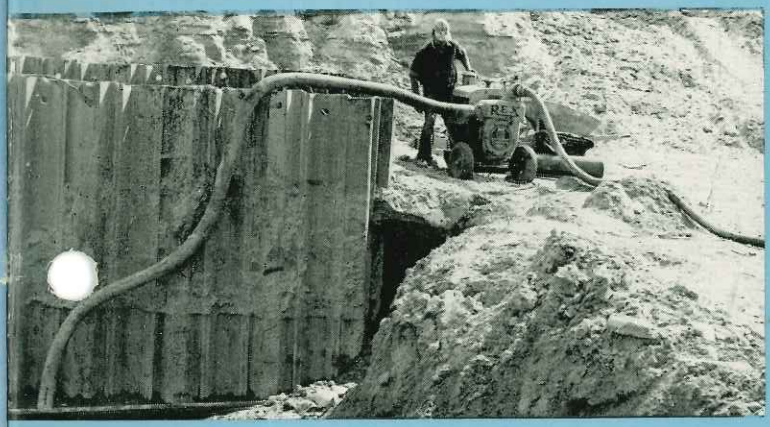
Here you see a Rex Heavy Duty centrifugal pump on a quarry high-suction lift.

Easy portability and quick hook-up make the Rex Pump ideal for general utility service.

Pictured here is the Rex Pump keeping seepage water from flooding a work area.

Rugged and dependable, this Rex Heavy Duty Speed Primer pumps out a flooded sewer.

on any job

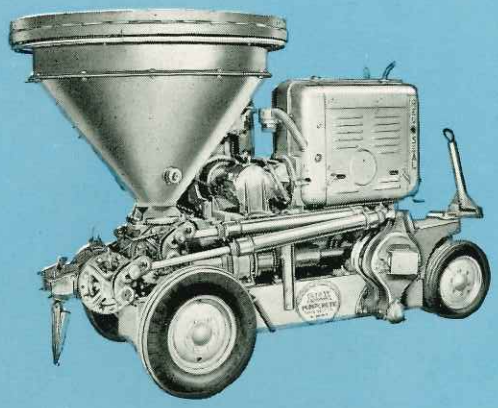


A 4″ Rex Pump on heavy-duty service keeps the hole dry.

Rex Pumps keep work open during road construction.

This big-capacity Rex Pump is being used to remove water from a footing.

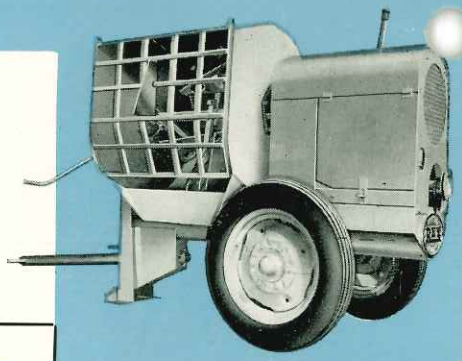
Rex Pumps



Rex Pumpcrete

Rex Building Mixers

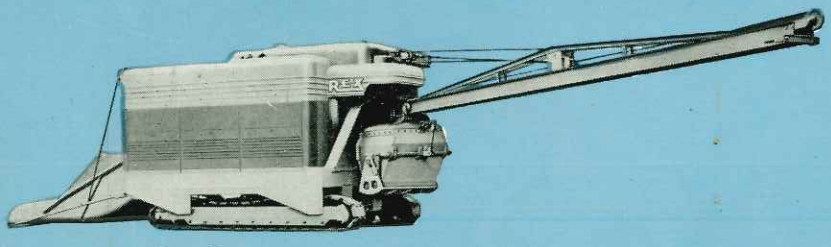
REX CONSTRUCTION MACHINERY



Rex Plaster and Mortar Mixers

CHAIN BELT COMPANY
MILWAUKEE 1, WISCONSIN

bulletin 55-35



Rex Pavers

Rex Moto-Mixers

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